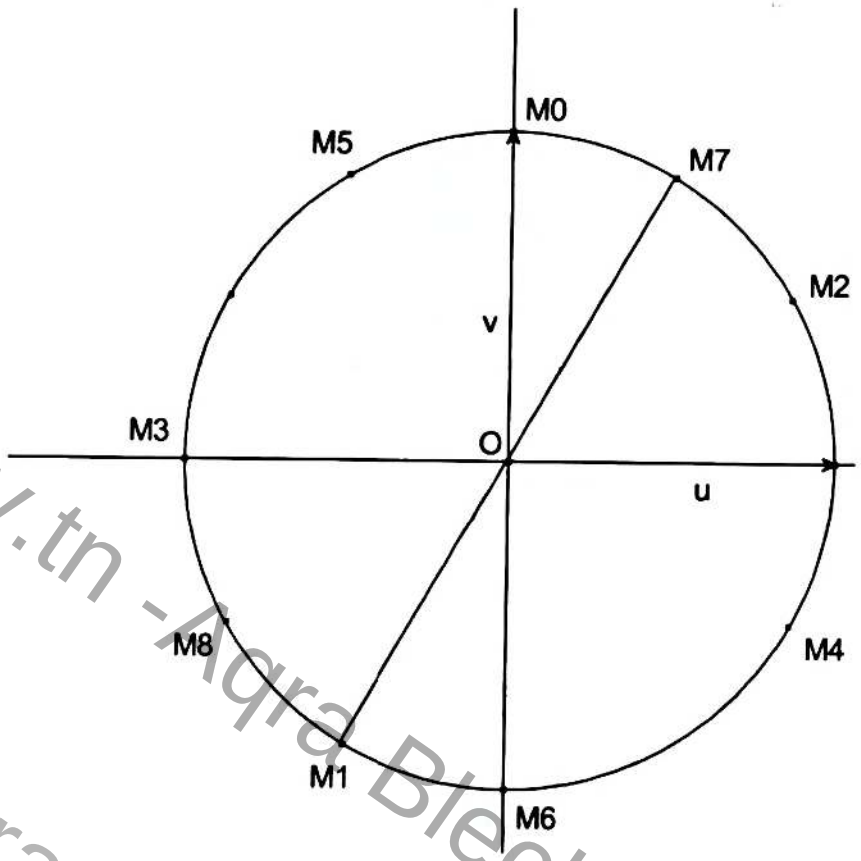
EX 32 : $\begin{cases} \alpha_0 = \dfrac{\pi}{2} \\ \alpha_{n+1} = \alpha_n + \dfrac{5\pi}{6} \end{cases}$

1) $\alpha_1 = \dfrac{\pi}{2} + \dfrac{5\pi}{6}$ $\alpha_2 = \dfrac{\pi}{2} + \dfrac{5\pi}{3}$ $\alpha_3 = \dfrac{\pi}{2} + \dfrac{5\pi}{2}$ $\alpha_n = \dfrac{\pi}{2} + n\left(\dfrac{5\pi}{6}\right)$



2)

$$\begin{cases} OM_n = 1 \\ \left(\vec{u}, \overrightarrow{OM_n}\right) \equiv \dfrac{\pi}{2} + n\left(\dfrac{5\pi}{6}\right)(2\pi) \end{cases} \Leftrightarrow \begin{cases} |z_n| = 1 \\ Arg\ z_n \equiv \dfrac{\pi}{2} + n\left(5\dfrac{\pi}{6}\right)(2\pi) \end{cases} \Rightarrow Z_n = e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6}\right)}$$

3) $z_{n+6} = e^{i\left(\frac{\pi}{2} + (n+6)\frac{5\pi}{6}\right)} = e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6} + 5\pi\right)} = e^{i5\pi} . e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6}\right)} = -e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6}\right)} = -z_n \Rightarrow M_{n+6} = S_O(M_n)$

Et comme $M_n \in (\zeta)$ Alors M_{n+6} et M_n sont diamétralement opposées.

4) $z_{n+12} = e^{i\left(\frac{\pi}{2} + (n+12)\frac{5\pi}{6}\right)} = e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6} + 10\pi\right)} = e^{i10\pi} . e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6}\right)} = e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6}\right)} = z_n \Rightarrow M_{n+12} = M_n$

5) $z_{n+4} = e^{i\left(\frac{\pi}{2} + (n+4)\frac{5\pi}{6}\right)} = e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6} + 10\frac{\pi}{3}\right)} = e^{i10\frac{\pi}{3}} . e^{i\left(\frac{\pi}{2} + \frac{5n\pi}{6}\right)} = e^{i\left(-\frac{2\pi}{3} + 4\pi\right)} . z_n = e^{-2i\frac{\pi}{3}} . z_n$

Qarray.tn - Aqra Blech - Qarray.tn